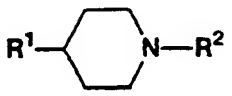
Claims

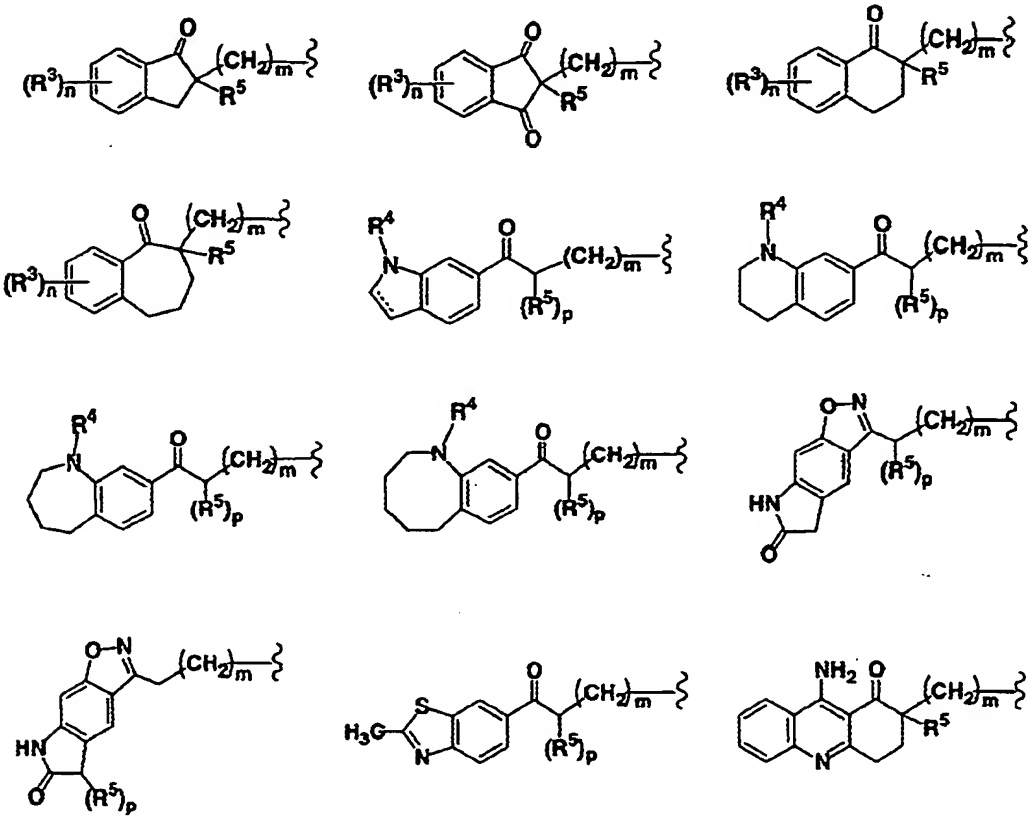
1. A compound represented by the formula:

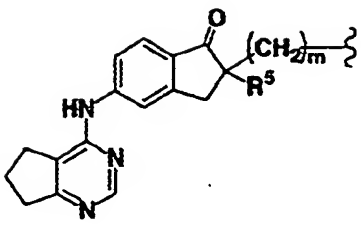
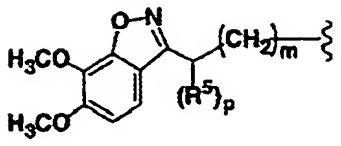
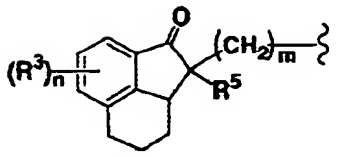
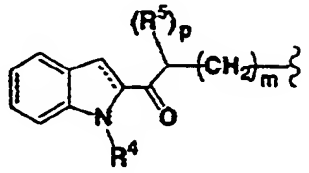


(I)

a pharmacologically acceptable salt thereof or hydrates thereof.

In the formula, R^1 represents any group selected from the groups represented by the formulae:

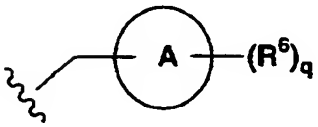





and


(wherein (R^3)s are the same as or different from each other and each represents hydrogen atom, a halogen atom, hydroxyl group, a C_{1-6} alkyl group, a C_{3-8} cycloalkyl group, a C_{1-6} alkoxy group, a C_{1-6} alkoxyalkoxy group, a halogeno C_{1-6} alkyl group, a hydroxy C_{1-6} alkyl group, a cyano C_{1-6} alkyl group, an amino C_{1-6} alkyl group, a halogeno C_{1-6} alkoxy group, a hydroxy C_{1-6} alkoxy group, a cyano C_{1-6} alkoxy group, a lower acyl group, nitro group, an optionally substituted amino group, an optionally substituted carbamoyl group, mercapto group or a C_{1-6} thioalkoxy group; R^4 represents hydrogen atom or a C_{1-6} alkyl group; R^5 represents a halogen atom (provided that fluorine is excluded), hydroxy group, a C_{1-6} alkyl group, a C_{1-6} alkoxy group, cyano group, a halogeno C_{1-6} alkyl group, a hydroxy C_{1-6} alkyl group, a cyano C_{1-6} alkyl group, an amino C_{1-6} alkyl group, nitro group, an azido group, an optionally substituted amino group, an optionally substituted carbamoyl group, an optionally substituted carboxyl group, mercapto group or a C_{1-6} thioalkoxy group; the partial structure ---- represents a single bond or double bond; m is 0 or an integer from 1 to 6; n is an integer from 1 to 4;

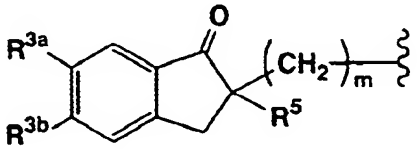
and p is an integer of 1 or 2); and

R^2 represents a C_{3-8} cycloalkylmethyl, a 2,2-(alkylenedioxy)ethyl or a group represented by the formula:



wherein the ring A represents a benzene ring or a heterocyclic ring; (R^6)s are the same as or different from each other and each represents hydrogen, a halogen atom, hydroxyl group, nitrile group, a C_{1-6} alkyl group, a C_{3-8} cycloalkyl group, a C_{1-6} alkoxy group, a C_{1-6} alkoxyalkoxy group, an aryloxy group, an aralkyloxy group, a halogeno C_{1-6} alkyl group, a hydroxy C_{1-6} alkyl group, a cyano C_{1-6} alkyl group, a halogeno C_{1-6} alkoxy group, a hydroxy C_{1-6} alkoxy group, a cyano C_{1-6} alkoxy group, a lower acyl group, nitro group, an optionally substituted amino group, an optionally substituted amide group, mercapto group or a C_{1-6} thioalkoxy group, and two of the R^6 may together form an aliphatic ring, an aromatic ring, a heterocyclic ring or an alkylenedioxy ring; and q is 0 or an integer from 1 to 5.

2. The compound according to Claim 1, a pharmacologically acceptable salt thereof or hydrates thereof, wherein R^1 is represented by the formula:



in which R^{3a} and R^{3b} are the same as or different from each other

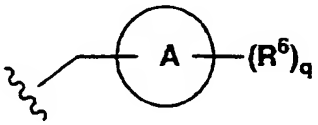
and each represents a C_{1-6} alkoxy group; and R^5 and m have the same meanings as defined above.

3. The compound according to Claim 2, a pharmacologically acceptable salt thereof or hydrates thereof, wherein R^{3a} and R^{3b} are methoxy groups.

4. The compound according to any of Claims 1 to 3, a pharmacologically acceptable salt thereof or hydrates thereof, wherein R^5 is chlorine or bromine.

5. The compound according to Claim 1, a pharmacologically acceptable salt thereof or hydrates thereof, wherein m is 1.

6. The compound according to Claim 1, a pharmacologically acceptable salt thereof or hydrates thereof, wherein R^2 is a group represented by the formula:



wherein the ring A, R^6 and q have the same meanings as defined above.

7. The compound according to Claim 6, a pharmacologically acceptable salt thereof or hydrates thereof, wherein the ring A is a benzene ring.

8. The compound according to Claim 6, a pharmacologically acceptable salt thereof or hydrates thereof, wherein the ring A is a pyridine ring.

9. The compound according to Claim 6, a pharmacologically acceptable salt thereof or hydrates thereof, wherein q is an

integer of 1 or 2.

10. The compound according to Claim 1, a pharmacologically acceptable salt thereof or hydrates thereof, which is the one selected from:

1-benzyl-4-[(5,6-dimethoxy-2-chloro-1-indanon)-1-yl]methylpiperidine,

1-benzyl-4-[(5,6-dimethoxy-2-bromo-1-indanon)-2-yl]methylpiperidine,

1-benzyl-4-[(5,6-dimethoxy-2-iodo-1-indanon)-2-yl]methylpiperidine,

1-benzyl-4-[(5,6-dimethoxy-2-hydroxy-1-indanon)-2-yl]methylpiperidine,

1-benzyl-4-[(5,6-dimethoxy-2-methyl-1-indanon)-2-yl]methylpiperidine,

1-benzyl-4-[(5,6-dimethoxy-2-ethyl-1-indanon)-2-yl]methylpiperidine,

1-benzyl-4-[(5,6-dimethoxy-2-azido-1-indanon)-2-yl]methylpiperidine,

1-benzyl-4-[(5,6-dimethoxy-2-amino-1-indanon)-2-yl]methylpiperidine,

1-benzyl-4-[(5,6-dimethoxy-2-methylamino-1-indanon)-2-yl]methylpiperidine,

1-benzyl-4-[(5,6-dimethoxy-2-dimethylamino-1-indanon)-2-yl]methylpiperidine,

1-benzyl-4-[(5,6-dimethoxy-2-acetamide-1-indanon)-2-yl]methylpiperidine,

1-benzyl-4-[(5,6-dimethoxy-2-methanesulfonamide-1-indanon)-2-yl]methylpiperidine,

3-(1-benzylpiperidin-4-yl)-2-chloro-1-(2,3,4,5-tetrahydro-1H-1-benzoazepin-8-yl)-1-propanone,

3-(1-benzylpiperidin-4-yl)-2,2-dichloro-1-(2,3,4,5-tetrahydro-1H-1-benzoazepin-8-yl)-1-propanone,

5,7-dihydro-3-{1-chloro-2-[(1-(phenylmethyl)-4-piperidinyl]ethyl}-6H-pyrrolo[4,5-f]-1,2-benzoisooxazol-6-one,

5,7-dihydro-3-{1,1-dichloro-2-[(1-(phenylmethyl)-4-piperidinyl]ethyl}-6H-pyrrolo[4,5-f]-1,2-benzoisooxazol-6-one,

1-(2-methyl-6-benzothiazolyl)-3-[1-(phenylmethyl)-4-piperidinyl]-2-chloro-1-propanone, and

1-(2-methyl-6-benzothiazolyl)-3-[1-(phenylmethyl)-4-piperidinyl]-2,2-dichloro-1-propanone.

11. A medicament comprising the compound according to Claim 1, a pharmacologically acceptable salt thereof or hydrates thereof as an active element.

12. The medicament according to Claim 11, which is an acetylcholinesterase inhibitor.

13. A medicament according to Claim 11, which is an agent for treating, preventing or ameliorating various types of senile dementia, cerebrovascular dementia or attention deficit hyperactivity disorder.

14. The medicament according to Claim 13, wherein the

various types of senile dementia is Alzheimer-type senile dementia.

15. A medical composition comprising a pharmacologically effective amount of the compound according to Claim 1, a pharmacologically acceptable salt thereof or hydrates thereof and a pharmacologically acceptable carrier.

16. A method of preventing, treating or ameliorating diseases against which the inhibition of an acetylcholinesterase is effective, by administering a pharmacologically effective amount of the compound according to Claim 1, a pharmacologically acceptable salt thereof or hydrates thereof to a patient.

17. A method of treating, preventing or ameliorating various types of senile dementia, cerebrovascular dementia or attention deficit hyperactivity disorder, by administering a pharmacologically effective amount of the compound according to Claim 1, a pharmacologically acceptable salt thereof or hydrates thereof to a patient.

18. Use of the compound according to claim 1, a pharmacologically acceptable salt thereof or hydrates thereof for producing an agent for preventing, treating or ameliorating diseases against which the inhibition of an acetylcholinesterase is effective.

19. Use of the compound according to Claim 1, a pharmacologically acceptable salt thereof or hydrates thereof for producing an acetylcholinesterase inhibitor.

20. Use of the compound according to Claim 1, a pharmacologically acceptable salt thereof or hydrates thereof for producing an agent for preventing, treating or ameliorating various types of senile dementia, cerebrovascular dementia or attention deficit hyperactivity disorder.